CLAIM AMENDMENTS

1 - 26. (cancelled without prejudice)

27. (currently amended) A method of making a hybrid photoactive device including:

(a) providing photosynthetic chlorosome-containing bacteria C. aurantiacus,

(b) extracting the RC⁻ chlorosomes [[RC⁻]] from the bacteria,

(c) providing a photoactive semiconductor, and

(d) locating the ~~chlorosome fragments RC⁻~~ RC⁻ chlorosomes proximate a light receiving surface of the photoactive semiconductor, wherein step (c) includes providing a photoactive semiconductor having a light response that is diminished at a first range of light wavelengths, and step (a) comprises choosing a RC⁻ chlorosome [[RC⁻]] having

(i) light response that is enhanced at a second range of light wavelengths that coincides, at least in part, with the first range of light wavelengths, and

(ii) light emission outside the first range of light wavelengths, and wherein choosing a RC⁻ chlorosome [[RC⁻]] comprises force adapting bacteria with chlorosomes with the light response enhanced at the second range of light wavelengths and light emission outside the first range.

28. (original) The method according to claim 27, wherein force adapting comprises design of experiment determination of environmental factors forcing adaptation of bacteria based upon multiple environmental variables applied to sample bacteria.

29 - 30. (cancelled without prejudice)

31. (original) The method according to claim 28, wherein force adapting comprises calculating a figure of merit for chlorosomes of the bacteria and identifying environmental factors resulting in an acceptable figure of merit.

32. (original) The method according to claim 31, wherein the figure of merit is:

$$FoM = \frac{\%T_{440\ (\text{Bchl c Soret})}}{\%T_{440\ (\text{Bchl c Soret})} + \%T_{460\ (\text{Carotenoid})}} * \frac{\%T_{795\ (\text{Bchl a Baseplate})}}{\%T_{740\ (\text{Bchl c Oligomeric Qy})}}.$$

33. (currently amended) The method according to claim [[26]] <u>27</u>, wherein the photoactive semiconductor diminished response is in the blue region of the visible spectrum and force adapting the bacteria comprises force adapting the bacteria to have chlorosomes responsive to light in said blue region to emit light outside said blue region.

34. (original) The method according to claim 33, wherein the light emitted by the chlorosomes is light in the near infrared region of the visible spectrum.

35. (withdrawn) A method of making a hybrid device comprising a biological component comprising the steps of:

(a) identifying performance characteristics of the biological component,

(b) from the performance characteristics of the biological component calculating a figure of merit for the biological component,

(c) for adaptations of the biological component calculate the figure of merit, and

(d) upon calculating an acceptable figure of merit for the biological component incorporating similar adaptations of the biological components having substantially that figure of merit into the hybrid device.

36. (withdrawn) The method according to claim 35, further comprising:

(e) force adapting the biological component to produce the adaptations.

37. (withdrawn) The method according to claim 36, wherein step (e) comprises force adapting the biological component by varying environmental factors effecting the development of the biological component.

38. (withdrawn) The method according to claim 37, wherein varying environmental factors comprises varying multiple environmental factors as variables in a design of experiment analysis of the biological specimen.

39. (withdrawn) The method according to claim 38, wherein varying the environmental factors comprises developing a group of the biological components in an environmental chamber having control of the environmental factors for individual test specimens containing one or more of the biological components.

40. (withdrawn) A method of analysis of a component or device that is at least partly biological, comprising the steps of:

(a) growing biological components of the device under controlled environmental conditions,

(b) varying the environmental conditions under which the biological components are grown,

(c) producing outputs from inputs to the biological components grown, and formulating transfer functions for the components,

(d) observing variances in transfer functions corresponding to the varied environmental conditions under which the biological components were grown, and

(e) choosing environmental factors for the growth of the biological components to arrive at desired transfer functions for the biological components.

41. (withdrawn) A method of making biological components for hybrid devices of biological and nonbiological components comprising:

(a) for the desired performance of the biological components deriving a figure of merit,

(b) growing organisms from which the biological components is to be gathered,

(c) controlling a plurality of environmental factors under which the organisms are grown including:

(i) subjecting the growing organisms to several alternate values of several controlled environmental factors,

(d) monitoring the figure of merit of the biological components grown in step (b),

(e) repeating steps (b), (c) and (d) until a desired figure of merit of the biological components has been achieved.

42. (withdrawn) The method according to claim 41, wherein step (b) comprises providing a multiple input, multiple output environmental chamber and growing the biological components therein.

43. (withdrawn) The method according to claim 42, wherein step (d) comprises applying a design of experiments analysis to the environmental factors and the figure of merit.

44. (previously presented) A hybrid photoactive device made by the method of claim 27.

45. (previously presented) A hybrid photoactive device made by the method of claim 33.

46. (previously presented) A hybrid photoactive device made by the method of claim 34.